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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,607	02/27/2002	Nils-Ivar Landgren	216268US	3925
22850	7590	03/25/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			MULLINS, BURTON S	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/926,607

Applicant(s)

LANDGREN, NILS-IVAR

Examiner

Burton S. Mullins

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 17-33 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Suspension of Action

1. As set forth in the decision on petition requesting suspension, the instant application was granted a suspension pending the decision on appeal of the '019 application. On November 27, 2002, the Board affirmed the rejection of the '019 application and on August 27, 2003, the Board denied applicant's request for reconsideration, thus terminating prosecution of the '019 application. An action on the merits follows.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statements submitted on April 29, June 14 and October 21, 2002 have been considered by the examiner, as well as those documents cited in the international search report.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the winding structure including inner and outer semiconducting layers, etc. (claims 30 & 33) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. Claims 17-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 17, the recitation “guiding the cooling air through the axial rotor duct to a center of the rotor” was not adequately described in the specification. What is described instead, on p.6, lines 20-23, is air flowing towards the center of the rotor through radial rotor duct 11 after flowing through the airgap 15 (see Figs.1&2). The reversed air then flows in the axial rotor ducts 9 to rotor end 21 and duct 23 (p.7, lines 10-13; Fig.3). Thus, it appears that the cooling air is guided through radial ducts 11 to the center of the rotor, not by axial rotor ducts, which instead direct cooling air back to the rotor end 21. No art has been applied to claims 17-25 pending amendment and/or clarification.

6. Claims 17-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17, recitation “reversing a direction of the cooling air” is indefinite because it is not clear if the direction is “reversed” relative to the direction of the air passing through the

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air gap (an axial direction) or the air guided “through the axial rotor duct to the center of the rotor” (also an axial direction, as claimed).

In claim 26, “the coil end section” (line 7) is indefinite because it is not clear if this refers to the previously recited “first coil end section” or the “second coil end section” (line 2).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lukens (US 3,643,119) in view of Archibald (US 3,643,119). Lukens teaches a rotating electric machine (synchronous generator) comprising: a stator 5 with a first coil end section 22 and a second coil end section 26 (Fig.1); a stator winding (not numbered, comprises sections 22&26); and a rotor 3 having a rotor center (not numbered, taken to be mid-way along the longitudinal length as shown Fig.1), with field windings 31 surrounded by a plurality of ducts 29&30 (Fig.2), and configured to be cooled by air flowing axially through the plurality of ducts (c.3, lines 7- 11 and 37-41), wherein said rotating electric machine is configured to be cooled with a circulation of cooling air passed from an air intake region (generally denoted by annular zone 9) through the coil end section 22 to an air gap 28 between the stator 5 and the

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rotor 3 to the rotor center via the plurality of ducts 29/30, and thereafter to exhaust openings 38 (c.3, lines 37-41).

Lukens differs in that a “cooling unit” is not provided for, per se, even though his apparatus as a whole impels coolant through the machine and thus cools the machine. Lukens also differs in that the machine is not explicitly a “high voltage” machine; however, this term has been given no patentable weight since it occurs in the preamble and does not “breath life and meaning” to the claimed cooling structure, but instead refers to the operating voltage of the machine.

Regarding the “cooling unit” feature, then, Archibald teaches a cooling system for a power generator including cooler assemblies 14 and 15 (Fig. 1) on top of the generator which extract heat from the gas flowing within the generator and recycle the gas back through the generator (c.2, lines 17-19 & 47-51).

It would have been obvious to modify Lukens and provide a cooling system with cooling units per Archibald since the cooling units would have been desirable to extract heat from the gas flowing within the generator and recycle it back through the generator.

Regarding claim 28, Lukens teaches that cooling airflow is axially forced into the air gap 28 toward the rotor center from the first coil end section 22 of the stator and the second coil end section 26 of the stator (see arrows denoting air flow direction, Fig. 1).

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lukens and Archibald as applied to claim 26 above, and further in view of Armor (US 4,465,947).

Lukens and Archibald both teach a fan connected to the rotor, but do not teach a diffuser connected to the fan.

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Aarmor teaches a fan diffuser comprising a disk 23 adjacent fan 30 (Fig.2). The diffuser improves static pressure head recovered from the gas flow and makes gas flow more efficiently (c.3, lines 5-11; c.8, lines 53-56).

It would have been obvious to modify Lukens and Archibald and provide a diffuser per Aarmor to improve static pressure head recovered from the gas flow and make gas flow more efficiently.

10. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lukens and Archibald as applied to claim 26 above, and further in view of Elton (US 4,853,565). Lukens and Archibald do not teach the claimed high voltage cable structure.

Elton teaches a high-voltage, electrical cable comprising current-carrying conductors 102 (Fig.7); an inner, semi-conducting "grading" layer 104 made of pyrolyzed glass fibers (c.7, lines 19-20) surrounding and being in electrical contact with the current-carrying conductor 102; a solid insulation layer 106 surrounding and contacting the inner layer; and an outer layer 110 having semi-conducting properties surrounding and contacting the solid insulating layer 106, as well as being in contact with ground, to thus bleed off static charge and thus prohibiting development of corona discharge (c.7, lines 23-28; lines 64-68). In another form, a predetermined reference potential may be coupled to the semi-conducting layer (c.8, lines 13-21). The equipotential surface formed by the outer layer 110 inherently "contains" the electric field around the conductor since it equalizes the charge about the strands 102 (c.7, lines 21-22).

It would have been obvious to modify Lukens and Archibald and provide the cable structure of Elton since such a cable would have been desirable to prohibit development of corona discharge.

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shildneck (US 3,014,139) in view of Elton (US 4,853,565). Shildneck teaches a large, turbine generator (c.1, lines 13-14), i.e. "high voltage" machine, comprising: a stator (core 14, Fig.3); a rotor (not shown, but part of turbine generator); and a high voltage, stator winding including a flexible, current-carrying conductor or cable 1 (Fig.1) and a means for cooling the machine comprising coolant conduits 9 (c.3, lines 67-69). However, Shildneck's conductor/cable does not comprise inner- and outer-semiconducting layers and an insulation therebetween, with a means for containing the electric field formed around the conductor.

Elton et al. teaches a high-voltage, electrical cable comprising current-carrying conductors 102 (Fig.7); an inner, semi-conducting "grading" layer 104 made of pyrolyzed glass fibers (c.7, lines 19-20) surrounding and being in electrical contact with the current-carrying conductor 102; a solid insulation layer 106 surrounding and contacting the inner layer; and an outer layer 110 having semi-conducting properties surrounding and contacting the solid insulating layer 106, as well as being in contact with ground, to thus bleed off static charge and thus prohibiting development of corona discharge (c.7, lines 23-28; lines 64-68). In another form, a predetermined reference potential may be coupled to the semi-conducting layer (c.8, lines 13-21). The equipotential surface formed by the outer layer 110 inherently "contains" the electric field around the conductor since it equalizes the charge about the strands 102 (c.7, lines 21-22).

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It would have been obvious to one having ordinary skill to modify Shildneck's high voltage machine winding and provide a high voltage, electrical cable per Elton et al. with grounded inner and outer semi-conductors separated by an insulator since such a cable would have been desirable to prohibit development of corona discharge.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In particular, Le Flem '959 teaches a rotating machine having a cooling unit comprising a heat exchanger 24 (Fig.11).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 571-272-2029. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


BURTON S. MULLINS
PRIMARY EXAMINER